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AIN SHAMS UNIV CAIRO (EGYPT) FACULTY OF MEDICINE

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STUDIES ON TOXOPLASMOSIS IN ANIMALS IN ASSOCIATION WITH MAN IN --ETC(U)

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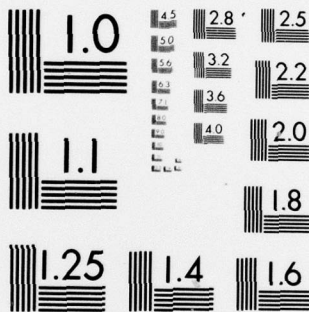
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AIN SHAMS UNIVERSITY
Faculty of Medicine
PARASITOLOGY DEPARTMENT

1st., July, 1978

TOXOPLASMOSIS RESEARCH UNIT GRANT FROM ONR : N00014-71-C-0435
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THIRTEENTH SEMI-ANNUAL PROGRESS REPORT

1/1/1978 - 30/6/1978

1. Studies on Toxoplasmosis in Animals in Association with man in Egypt.

A- Search for Toxoplasma infection in farm animals and those living in the neighbourhood of man is continuing to cover more Governorates of Egypt and examine larger number of these animals P

1. Sera of blood collected from buffaloes, sheep, cows calves, camels, pigeons, sparrows, different rodents, goats and camels were produced for testing for Toxoplasma antibodies by Sabin-Feldman dye test from the following Governorates within the past six months (1/1/1978 up to 30/6/1978) as follows :

A- From Qaliubya Governorate at "Benha" Slaughter House 176 sera were separated from the blood collected from buffaloes and cows (92 blood specimens from buffaloes and 84 from cows). Dye test results on sera of buffaloes

showed that 62 sera showed negative reactions (-ve to 1/8) while 30 sera showed positive reactions : 21 sera at a titre of 1/16, one at a titre of 1/32, 5 sera at a titre of 1/64 and 3 sera reacted positively at a titre of 1/128. Cows' sera at Benha : Out of 84 sera tested by the dye test 74 were negative (up to a titre of 1/8) and 10 sera showed positive reactions for Toxoplasma antibodies (8 sera at a titre of 1/16 and 2 sera at a titre of 1/32).

B- From Gharbya Governorate : 171 sera were separated from blood specimens of cows slaughtered at Tanta City at Gharbya Governorate ; 124 sera of Egyptian cows and 47 sera of Somalian cows. Dye test performed on sera of these animals showed that out of 124 sera of Egyptian cows 104 sera showed negative sero reaction for toxoplasmosis (-ve to 1/8) while 20 sera showed positive reactions at a titre of 1/16. Regarding Somalian cows : results of dye test showed that 22 sera reacted negatively (-ve to 1/8) whereas 5 sera were positive for Toxoplasma

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antibodies (3 sera at a titre of 1/16, one serum at a titre of 1/64 and another one at a titre of 1/128).

C- Survey at Monofya Governorate : (Shebeen El-Koum Slaughter Hous) : 190 blood specimens were collected from buffaloes, cows and sheep (99 sera were separated from buffaloes, 64 sera were procured from blood of cows and 27 sera from blood of sheep). Dye test results on buffaloes' sera showed that 82 sera out of 99 showed negative reactions up to a titre of 1/8 while 17 sera were positive : 16 at a titre of 1/16 and one serum at a titre of 1/32.

Regarding sera obtained from cows at Shebeen El Koum City : 51 sera out of 64 reacted negatively up to a titre of 1/8 while 13 sera were positive for Toxoplasma antibodies (7 sera at a titre of 1/16, 3 sera at a titre of 1/32 and 3 at a titre of 1/64).

On performing the dye test on sera of sheep's blood from Shebeen El-Koum at Monofya: 22 sera of sheep were negative by the dye test (up to a titre of 1/8 while only 5 sera showed positive reactions a titre of 1/16).

D- Serological Survey at Damietta Governorate : At Damietta and the near-by areas 201 blood specimens were collected from buffaloes, cows and sheep (177, 16 and 8 respectively). Sera separated and tested by the dye test. Results of sera of buffaloes showed that out of 177 sera 125 reacted negatively up to a titre of 1/8 while 52 sera showed positive reactions : (9 sera at a titre of 1/16, 42 sera at a titre of 1/64 and only one serum reacted at a titre of 1/128).

Serological results for sera of cows (5 sera showed negative reaction reactions for toxoplasmosis and 11 sera were positive for Toxoplasma antibodies at a titre of 1/16).

Regarding sheep's sera from Damietta, all 8 specimens were seronegative to the dye test.

E- Survey at Alexandria Governorate : In addition to the 50 Pigs' sera collected from a pig farm at El-Max, Alexandria and tested serologically for Toxoplasma antibodies (Results previously sent in the twelfth semiannual report), 240 blood specimens were procured from animals at the Slaughter House of Alexandria City : 80 specimens from buffaloes, 65 from cows, 79 from sheep (40 specimens of blood from imported sheep-Marino type and 39 specimens from local sheep -Balady-type, and 16 specimens from calves. Sera were separated and prepared for testing for Toxoplasma antibodies by the dye test :

1. Buffaloes' sera from Alexandria : 76 sera out of 80 showed negative sero reactions while only 4 buffaloes' sera reacted positively at a titre of 1/16.

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2- Cows' Sera from Alexandria : 60 sera out of 65 were negative by the dye test up to a titre of 1/8 and only 5 sera showed positive reactions : 4 at a titre of 1/16 and one serum at a titre of 1/32.

3- Sheeps' Sera from Alexandria :

A- Marino(imported sheep) : out of 40 specimens procured, 34 sera were negative by the dye test (up to a titre of 1/8) while only 6 sera were sero positive : 4 at a titre of 1/64, one serum at a titre of 1/128 and another one at a titre of 1/512.

b- Local(Balady) Sheep : 24 sera were sero negative and 15 sera of local sheep showed positive reactions at different titres : 10 at a titre of 1/16, 3 sera at a titre of 1/32 and 2 sera at a titre of 1/64.

4- Calves' sera from Alexandria : 11 sera of young calves out of 16 collected showed a negative reaction for toxoplasmosis while 5 sera were sero positive by the dye test at different titres (one serum at a titre of 1/32, two sera at 1/64 and another two sera at a titre of 1/128).

F- Survey at Rashid Governorate : Very recently another survey was performed at Rashid City to examine local farm animals bred at this city where 50 blood specimens were collected by the team of assistants under the supervision of the Principal Investigator. The fifty specimens of blood included 21 specimens from local sheep(Balady), 15 specimens from cows and 14 from buffaloes. Dye test results on local sheeps' sera revealed that 14 out of 21 reacted negatively while 7 sera showed positive reactions : 4 at a titre of 1/16, one serum at a titre of 1/32 and two sera at a titre of 1/64.

Concerning cows' sera from Rashid : 13 specimens out of 15 procured were seronegative for toxoplasmosis and only two sera were seropositive at titres of 1/16 and 1/64.

Regarding buffaloes' sera from Rashid : 13 sera out of 14 were negative to the dye test (-ve to 1/8), while only one serum was seropositive for toxoplasmosis at a titre of 1/128.

Analysis and interpretation of dye test results of sera under above items A,B,C,D,E, and F are given in two papers under publication. (Please see items of Publications).

B-K Search for Natural Toxoplasma Strains in animals is continuing : Organs from cows, buffaloes, lambs are taken (brain, liver & lungs) and inoculated under aseptical measures in laboratory bred mice. Special stress is laid now for trials at isolation from rabbits, pigeons and chickens bred in association with man at different areas of Egypt together with the

serological study for antibodies/ Toxoplasma in sera of these animals , with the aim of probable isolation of Toxoplasma strains in the near future .

No successful isolation was achieved in the last six months from animals .

C - These attached to the Toxoplasmosis Research Unit :

1. M.D. Thesis previously registered on "Toxoplasmosis and Pregnancy"; Practical work and collection of literature on the subject is still going on .

2. M.D. Thesis was recently registered on February 1978 by an assistant lecturer in Parasitology Department ,Faculty of Medicine, Ain Shams University, entitled "The Reticulo Endothelial System In Experimental Toxoplasma And In Plasmodium Infections." The present investigation is designated to show the influence of concomitant infections with Toxoplasma gondii and plasmodium berghei on the host immune response. This is achieved by :

I- A study of the histopathological and histochemical changes of the R.E.S. as represented by lymph nodes ,thymus, spleen, liver in a- Acutely and chronically infected experimental animals with

Toxoplasma and controls. b- Acutely and chronically infected experimental animals with Plasmodium and controls. C- Concomitant infection with both Toxoplasma and Plasmodium, in acutely and chronically infected experimental animals .

2- Study of mortality in individual and concomitant infectious with both parasites.

3- Study of morbidity in individual and concomitant infections with both parasites as determined by a) Body weight. b) Toxoplasma infection and malarial parastaemia. c) Anemia and white cell count.

4. Study of serological response in individual and concomitant infections with both parasites employing the immunofluorescent antibody test.

D- CONGRESSES

The principal investigator or one of his participants is intending to attend the "Scientific Programme Committee ICOPA IV, at Warszawa, Poland in August 1978. The following paper will be read " Prevalence of Toxoplasma antibodies among slaughtered animals in lower Egypt." Partially sponsored by our Grant.

E- Publications : The following articles are under publication. Reprints will be delivered as soon as received , the papers are entitled :

1. " The Prevalence of Toxoplasma antibodies In Human Females In the reproductive Period At Cairo." Under Publication in Journal of Egyptian Public Health Association. In this paper the prevalence of Toxoplasma antibodies in women in the childbearing period

in Cairo was studied in a sample of 508 cases . The positive overall percentage in females and those recorded for abortion and other perinatal complications, calls for an increased awareness in order to avoid acquired toxoplasmosis in pregnant women and its foetal consequences. In this survey 12.5% of mothers with history of congenital abnormalities were found positive. for toxoplasmosis by the dye test and indirect immune fluorescent antibody test. Data in this paper had been worked out and results interpreted during the previous study of Toxoplasmosis In Man. This paper is under publication in Journal of Egyptian Public Health Association.

2- "The Influence of Thermal Stress On The Electrophoretic Pattern of Serum Proteins of Albino Rats Infected With Toxoplasma Gondii." Under publication in Journal of Egyptian Society of Parasitology. In this paper albino rats infected with RH strain of Toxoplasma gondii were stressed by either low or high temperature . The combined effect of infection and stress differed remarkably from the effect of either factor alone. It was concluded that Toxoplasma infection is mostly asymptomatic, yet when the infected hosts are exposed to marked climatic changes such as heat or cold stress, serious consequences and complications are virtually expected. It was also obvious that thermal stress induces vital changes in Toxoplasma infected animals including serum proteins and their electrophoretic pattern.e.g. reduction in gammaglobulins together with marked increase of the dye test and complement fixing antibodies observed in high temperature-stressed animals.

3-"Incidence of Toxoplasmosis Among Farm Animals In North Coastal Zone Of Egypt". Under publication in the Journal of Verlag Berlin, Volume 9, 1978.

In this paper it was predicted that the overall positive rate in Damietta Governorate among buffaloes and cows is 38.1% . While at Alexandria Governorate regarding buffaloes, sheep and pigs examined the overall positive rate for toxoplasmosis reached 31.4 % . Also, the highest incidence of positivity is among pigs which totals 25 or 50 % . This is followed by sheep which totals 37 or 45.8 % , followed by cows which totals 36 or 34.3 % . The lowest incidence is among buffaloes which totals 82 or 28.8% i.e. the incidence in buffaloes is lower and at lower titre than in calves. Also in sheep . Although the incidence is higher in the local type than in the marino type , yet the latter showed a higher positive titre.

4- "Prevalence of Toxoplasma antibodies Among Slaughtered Animals In Lower Egypt". Under publication in Journal of Egyptian Public Health Association. Also will be read in front of the Scientific Programme Committee ICOPA IV at Warszawa , Poland, August, 1978.

In this paper the highest incidence for toxoplasmosis among slaughtered animals varied between 17.8% in Sharkya Governorate to 44 % in Kafr El Sheikh Governorate.

The highest incidence was found among camels and the lowest among buffaloes. The results were discussed .

F- Plans to be Fulfilled in the next period .

1. It is intended to study farm animals of Upper Egypt extensively for toxoplasmosis including goats, also pigeons and birds, and different rodents over Governorates of Upper Egypt to find the animal reservoir or reservoirs of the disease in Egypt.
2. Examination of the Oases of Egypt for Toxoplasmosis in Animals is intended to be done (Siwa, El-Wady El-Gadeed, and El-Frafra).
3. Continuation for search of Toxoplasma strains naturally in animals by trials for isolation .

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